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SPRUCE BUDWORM
CONTROL PLAN FOR 1954
IN
OREGON AND WASHINGTON

Prepared by

NORTHWEST FOREST PEST ACTION COMMITTEE

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SPRUCE BUDWORM CONTROL PLAN FOR 1954 IN OREGON AND WASHINGTON

INTRODUCTION

The following plan for the control of the spruce budworm in Oregon and Washington in 1954 is submitted by the Northwest Forest Pest Action Committee 1/ after a careful analysis of survey findings in 1953. This plan calls for a continuation on a reduced scale of the cooperative program begun in 1949 to prevent widespread tree killing by the spruce budworm.

The control plan recommended for 1954 is predicated on the previously adopted policy of keeping the control program to a minimum by spraying only to prevent serious losses on heavily infested areas of economic importance and to prevent the reinfestation of previously sprayed areas. The Committee is convinced that it would be impossible to eradicate the entire infestation through direct control with chemicals. Complete control can be effected only with the aid of natural control factors.

1/ The Northwest Forest Pest Action Committee is composed of representatives of the following organizations:

Associated Forest Industries of Oregon
Bureau of Land Management
Forest Service
Indian Service
Industrial Forestry Association
Keep Oregon Green Association
Keep Washington Green Association
Oregon Extension Service
Oregon Forest Fire Association
Oregon State Board of Forestry
Oregon State College
Soil Conservation Service
Southern Oregon Conservation and Tree Farm Association
State College of Washington
Tree Farm Management Service
University of Washington
Washington Forest Fire Association
Washington State Division of Forestry
Western Forest Industries Association
Western Forestry and Conservation Association
Western Pine Association

CONTROL ACCOMPLISHMENTS

Upon the recommendation of the Committee, five cooperative aerial spraying projects have been completed during the period 1949 - 1953 to control the budworm epidemic in the most critical areas of infestation. The progress of the epidemic and the efforts to control it are shown in Graph I on page 3. The major accomplishments of the program are as follows:

1. The epidemic, which started in 1944 and reached a peak of 2,276,000 acres in 1949, has been reduced to 1,136,000 acres in 1953.

2. The acreage of heavy defoliation on which tree killing by the budworm was occurring has been reduced from 887,000 acres in 1949 to 141,000 acres in 1953.

3. General killing by the spruce budworm has been confined to less than 10,000 acres.

4. Epidemic infestations have been eliminated in western Oregon and tree killing has been prevented.

5. Epidemic infestations have been eliminated from the eastern Oregon Cascades area and tree killing has been kept to a minimum.

6. Protection of valuable watersheds has been achieved and a potentially serious forest fire hazard has been averted.

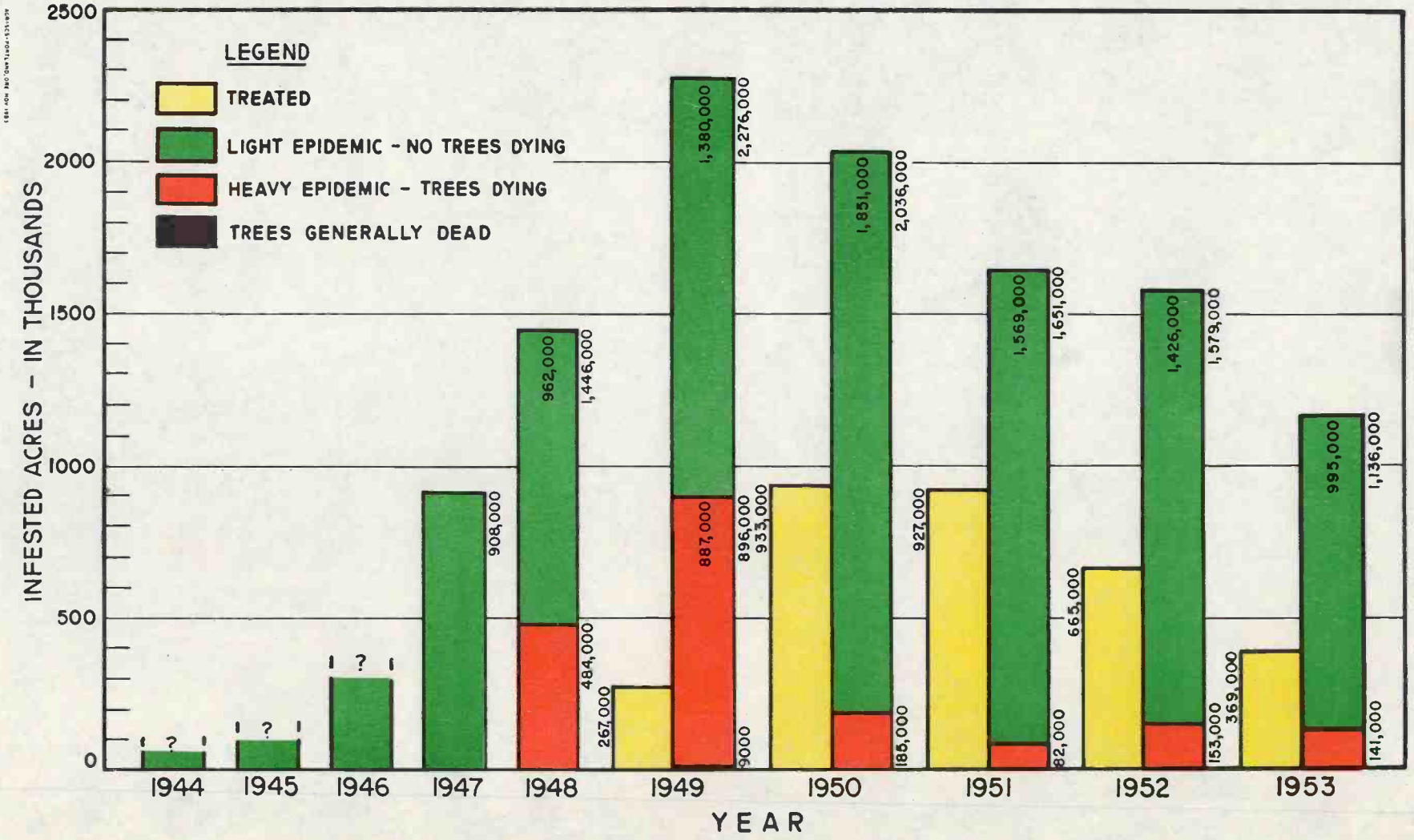
7. The practicability of aerial spraying to control the budworm has been demonstrated.

A digest of the five completed control projects shows the following highlights:

Year	Acreage Treated	Average Cost Per Acre	Total Cost	Percent of Budworm Mort. Range	Average
1949	267,000	$1.20	$ 320,400	88.9 - 100	97
1950	933,000	1.06	988,980	90.4 - 100	99
1951	927,000	1.06	982,620	74.0 - 100	98
1952	656,000	1.04	682,240	81.8 - 100	98
1953	369,000	.95	350,050	88.5 - 100	99
TOTAL	3,152,000	$1.06	$3,324,290	74.0 - 100	

GRAPH I

PROGRESS OF SPRUCE BUDWORM EPIDEMIC IN OREGON AND WASHINGTON



CURRENT SITUATION

The status of the spruce budworm in Oregon and Washington, as revealed by the cooperative survey of 1953 1/, is summarized in Table I on page 9. Epidemic infestations of the budworm were found on 1,136,020 acres, with 537,080 acres (47.3%) light, 457,990 acres (40.3%) moderate, and 140,950 acres (12.4%) heavy.

The acreage of spruce budworm epidemic infestations existing in 1953, compared to the conditions in 1952, is as follows:

Area	1953	1952
Blue Mountains, Oregon	994,420 acres	1,407,680 acres
Blue Mountains, Washington	118,880 acres	127,280 acres
Western Oregon	0 acres	23,840 acres
Eastern Washington Cascades	22,720 acres	19,840 acres
Eastern Oregon Cascades	0 acres	0 acres
Area Totals	1,136,020 acres	1,578,640 acres
Total for Oregon	994,420 acres	1,431,520 acres
Total for Washington	141,600 acres	147,120 acres

Excellent progress has been made so far in controlling the epidemic, but the job is not yet completed. The following factors persuade the Committee that further control efforts in 1954 are urgently needed:

1. The infestation in the La Grande Unit has seriously increased in intensity. Tree killing in this area is imminent and reinfestation of adjacent treated areas has already begun.

2. Treatment of the Malheur unit was recommended by the Committee for 1953, but was postponed because of insufficent federal funds. The infestation in this unit has increased and if it is not treated in 1954 serious timber losses are inevitable.

1/ Report of Forest Insect Surveys in Oregon and Washington, Season of 1953 Compiled by Oregon State Board of Forestry and Bureau of Entomology and Plant Quarantine, United States Department of Agriculture. October 30, 1953.

RECOMMENDATIONS FOR 1954

The Committee recommends the spraying of 161,570 acres of spruce budworm infestations in Oregon in 1954. No budworm control is recommended in Washington in 1954.

Units to be Treated in 1954

In preparing this recommendation the Committee has eliminated from consideration areas with severe epidemic Douglas fir beetle infestations; areas of generally low timber values; areas where rough terrain would make spraying operations excessively difficult and hazardous; and areas of low intensity.

The resultant recommendation is the minimum program considered necessary to meet the objectives of:

1. Preventing the general killing of commercially valuable timber stands, and

2. Preventing the reinfestation of previously treated areas.

The recommended 1954 control plan includes two of the 15 infestation units recorded during the 1953 survey (Table I). Present budworm conditions on these two units are discussed in the section of this plan entitled "Control Unit Data."

A brief summary of the ownerships in the two units is as follows:

Federal	88,120 acres (54.5%)
State	400 acres (0.3%)
Private	73,050 acres (45.2%)
Total	161,570 acres (100.0%)

Project Administration

During the previous five large-scale control projects, a satisfactory and practical system of project administration and technical supervision has been developed. The Committee recommends that the 1954 project be conducted in a similar manner, as follows:

1. That the Pacific Northwest Forest and Range Experiment Station be responsible for the supervision, coordination and inspection of all technical phases of the project.

2. That the administrative responsibilities be divided between the Forest Service and the Oregon State Board of Forestry as shown in Table 4 and summarized below:

Agency	Total Acres	Percent of Total Ownership	
		Federal	Private, State & County
Forest Service	100,000	55.9	44.1
Oregon State Board of Forestry	61,570	52.2	47.1
Total	161,570	54.5	45.5

Apportionment of Costs

It is proposed that the costs of control in 1954 be apportioned by the formula used in 1953, as follows:

1. Federal Government

   a. To pay the full cost of treating lands under federal jurisdiction.

   b. To contribute 25 per cent of the cost of treating privately owned lands.

2. State of Oregon

   a. To pay the full cost of treating state, county and municipally-owned lands.

   b. To contribute 37½ per cent of the cost of treating privately owned lands.

3. Private Owners

   a. To pay 37½ per cent of the cost of treating privately owned lands within the zones of infestation established by the State Forester.

Using an estimated cost of $1.10 per acre, the probable obligations for the 1953 project (Table 3) are as follows:

Federal

For federal lands	$ 96,932
For private lands	20,089
Total federal funds required	$117,021

State of Oregon

For state, county, and municipal lands	$ 440
For private lands	30,133
Total State of Oregon funds required	$ 30,573

Private Owners

For private lands in Oregon	$ 30,133
TOTAL COST OF 1954 PROJECT	$177,727

The Committee again urges the administrative agencies to continue to keep control costs at the lowest possible level compatible with effective and safe control.

CONTROL UNIT DATA

The spruce budworm outbreak is now confined to the Blue Mountains of Oregon and Washington and the northern Cascades in Washington (Table 1). The Committee feels that control is warranted only in the Blue Mountains of Oregon at present.

Blue Mountains - Oregon Area

All the acreage of spruce budworm epidemic infestations recorded by the 1953 survey in Oregon was confined to the Blue Mountains Area. In 1953 some 994,420 acres in this area were found to be infested. This is a decrease of over 41,000 acres in the infestation as recorded in 1952. A summary of the control work in this area is as follows:

Year	Acreage
1950	747,781
1951	479,164
1952	371,511
1953	291,336
Total	1,889,792

The Committee's policy for spruce budworm control in the Blue Mountains - Oregon area has been to withhold treatment until extensive tree killing by the budworm was in progress or imminent within one year. The first project in this area was conducted in 1950. This and subsequent projects have satisfactorily controlled the budworm on the critical units; however, epidemic populations of the budworm have continued to develop throughout the untreated units and are now critical on the two units discussed below.

The 161,570 acres recommended by the Committee for treatment in 1954 are all in the Blue Mountains - Oregon area, in the following numbered units shown in Table 1:

3. Malheur Unit: The spruce budworm was recorded in epidemic proportions on 191,520 acres on and adjacent to the Long Creek District of the Malheur National Forest in 1953. The current infestations were classed as 71,850 acres (37.5%) light, 70,230 acres (36.7%) moderate, 49,440 acres (25.8%) heavy. The area of infestation is slightly less than that recorded in 1952, but the percentage in the moderate to heavy infestation classification has almost doubled.

This unit was recommended by the Committee for treatment during the 1953 control project, but, due to a shortage of federal funds, it had to be eliminated. The entomological conditions justifying control in 1953 continue to exist and control in 1954 is fully warranted. While there are no abnormal populations of bark beetles on or near the unit, much of the fir timber has been so weakened that widespread killing by both the budworm and subsequent attacks by bark beetles could easily occur.

A large proportion (44.1%) of this unit is privately owned. The principal private owners favor treatment in 1954 and are willing to contribute their share of control costs.

In order to keep the 1954 project on a minimum basis it is proposed that only approximately 100,000 acres of the total infested area be treated. In making this reduction, most areas of light infestation have been eliminated as well as large openings and pure pine stands within the areas of moderate and heavy infestation. This leaves 91,520 acres of epidemic infestation to be treated at a later date, in case natural factors do not become fully effective.

5. La Grande Unit: Epidemic infestations in the fir stands of the La Grande, Oregon watershed totalling 51,490 acres were recorded during the 1953 survey. This outbreak was classed as 39,180 acres (76.1%) light, 11,920 acres (23.1%) moderate and 390 acres (1.8%) heavy. The ownership is 27,230 acres (52.9%) federal and 24,260 acres (47.1%) private, state and other.

Control measures in this unit in 1954 are strongly recommended to prevent imminent tree killing within the unit, to protect watershed values, and to prevent further reinfestation of adjacent previously treated areas.

The area recommended for control in this unit in 1954 is approximately 61,570 acres. This would include the 51,490 acres of recorded infestation on previously unsprayed areas and 10,080 acres of reinfestation on adjacent treated areas.

TABLE 1 - SUMMARY OF 1953 SPRUCE BUDWORM EPIDEMIC IN OREGON AND WASHINGTON

AREAS AND UNITS	Infested Acreage			Spraying Schedule	
	Light Epidemic (Acres)1/	Heavy Epidemic (Acres)	Total (Acres)	1953 Project (Acres)	Remaining Infested (Acres)
Blue Mountains-Oregon Area					
(1) Ochoco	188,850		188,850		188,850
(2) Aldrich Mt.	8,710		8,710		8,710
(3) Malheur	142,080	49,440	191,520	100,000	91,520
(4) Susanville	13,700		13,700		13,700
(5) LaGrande	51,100	390	51,490	61,5702/	
(6) Powder River	41,820		41,820		41,820
(7) Baker Watershed	19,590		19,590		19,590
(8) Eagle Creek	40,010	6,400	46,410		46,410
(9) Moss Spring	21,330	2,690	24,020		24,020
(10) Joseph	101,930	31,830	133,760		133,760
(11) Snake	145,560	12,570	158,130		158,130
(12) Chesnimnus	75,750	16,350	92,100		92,100
(13) Troy	22,240	2,080	24,320		24,320
TOTAL FOR OREGON	872,670	121,750	994,420	161,570	842,930
Blue Mountains-Washington Area					
(14) Saddle Mt.	106,400	12,480	118,880		118,880
Eastern Washington Cascades Area					
(15) Wenatchee	16,000	6,720	22,720		22,720
TOTAL FOR WASHINGTON	122,400	19,200	141,600		141,600
GRAND TOTAL	995,070	140,950	1,136,020	161,570	984,530

1/ The acreage of "light epidemic infestation" includes the acreage of "light" and "moderate" infestations recorded during the 1953 survey and listed in the survey report of October 30, 1953.

2/ This includes 10,080 acres of infestation on an adjacent previously treated unit.

TABLE 2 - PROPOSED 1954 SPRUCE BUDWORM CONTROL PROJECT BY OWNERSHIPS

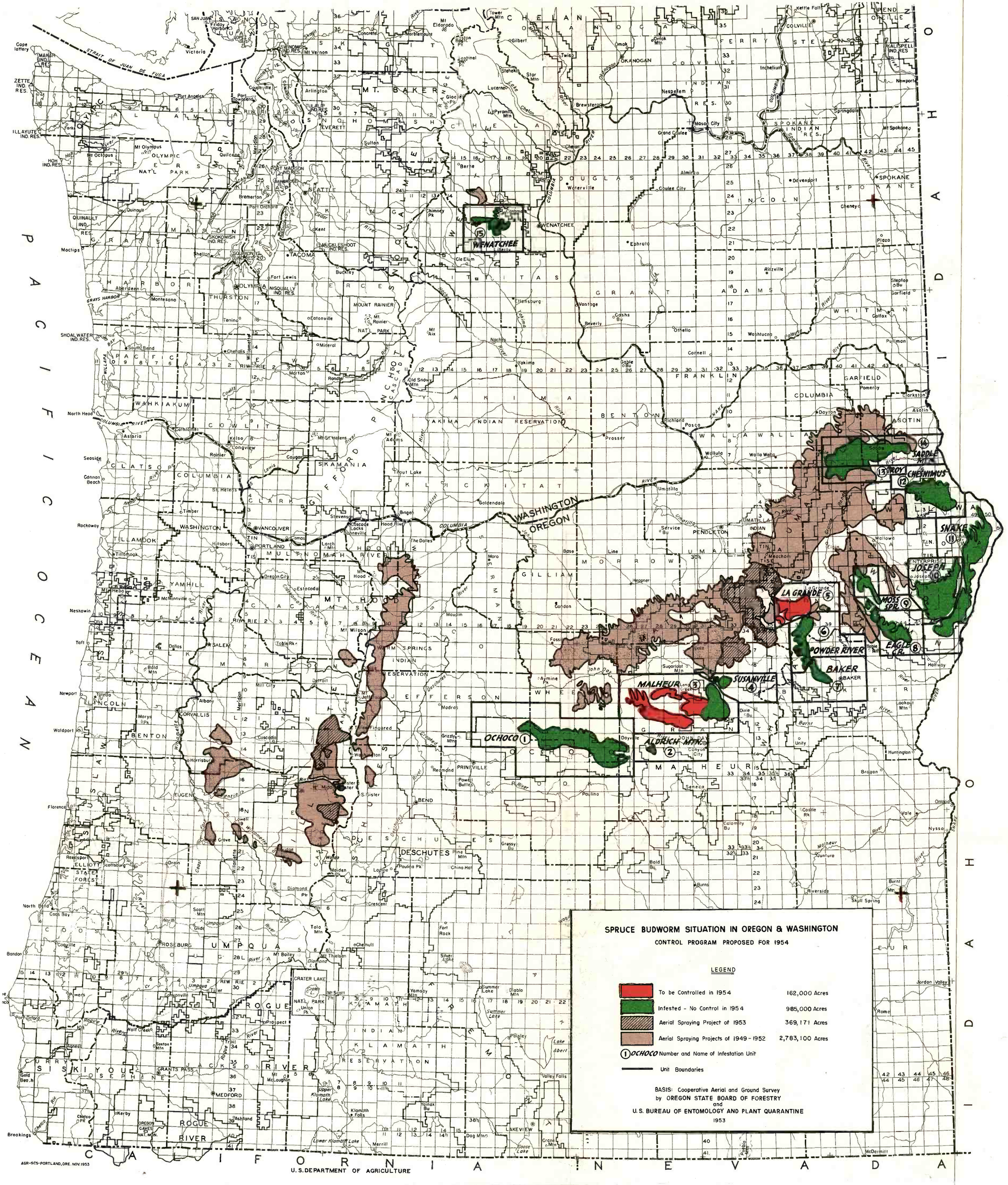
Areas and Control Units	FEDERAL: National Forest (Acres)	FEDERAL: Public Domain (Acres)	FEDERAL: Total (Acres)	FEDERAL: Percent of Total	STATE & COUNTY: (Acres)	STATE & COUNTY: Percent of Total	PRIVATE: (Acres)	PRIVATE: Percent of Total	GRAND TOTAL: (Acres)
BLUE MOUNTAINS - OREGON									
(3) Malheur	53,300	2640	55,940	55.9			44,060	44.1	100,000
(5) LaGrande	31,430	750	32,180	52.2	400	0.7	28,990	47.1	61,570
Total	84,730	3390	88,120	54.5	400	0.3	73,050	45.2	161,570

TABLE 3 - PROPOSED APPORTIONMENT OF COSTS FOR 1954 SPRUCE BUDWORM CONTROL PROJECT
(Based on estimated cost of $1.10 per acre)

Areas and Control Units	FEDERAL COSTS: U. S. Lands (100%)	FEDERAL COSTS: Private Lands (25%)	FEDERAL COSTS: Total	STATE COSTS: For State & County Lands (100%)	STATE COSTS: For Private Lands (37½%)	STATE COSTS: Total	PRIVATE COSTS: For Private Lands (37½%)	GRAND TOTAL
BLUE MOUNTAINS - EASTERN OREGON								
(3) Malheur	61,534	12,117	73,651		18,175	18,175	18,175	110,001
(5) La Grande	35,398	7,972	43,370	440	11,958	12,398	11,958	67,726
Total	96,932	20,089	117,021	440	30,133	30,573	30,133	177,727

TABLE 4 - PROPOSED ADMINISTRATION OF 1954 SPRUCE BUDWORM CONTROL PROJECT

Administrative Agency	Control Units	Federal Acreage	Percent of Total	State & County Acreage	Percent of Total	Private Acreage	Percent of Total	Total Acreage
Forest Service	(3) Malheur	55,940	55.9			44,060	44.1	100,000
Oregon State Bd. of Forestry	(5) LaGrande	32,180	52.2	400	0.7	28,990	47.1	61,570
Grand Total		88,120	54.5	400	0.3	73,050	45.2	161,570


SPRUCE BUDWORM SITUATION IN OREGON & WASHINGTON
CONTROL PROGRAM PROPOSED FOR 1954
LEGEND
To be Controlled in 1954 162,000 Acres
Infested - No Control in 1954 985,000 Acres
Aerial Spraying Project of 1953 369,171 Acres
Aerial Spraying Projects of 1949 - 1952 2,783,100 Acres
① OCHOCO Number and Name of Infestation Unit
Unit Boundaries
BASIS: Cooperative Aerial and Ground Survey
by OREGON STATE BOARD OF FORESTRY
and
U.S. BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
1953
OCHOCO ① ALDRICH MTN. ② MALHEUR ③ SUSANVILLE ④ LA GRANDE ⑤ POWDER RIVER ⑥ BAKER ⑦ MOSS SPR. ⑨ EAGLE CR. ⑧ SNAKE ⑪ JOSEPH ⑩ ROY CHESNIMUS ⑫ ⑬ SADDLE MT. ⑭ WENATCHEE ⑮
PACIFIC OCEAN
IDAHO
CALIFORNIA
NEVADA
WASHINGTON
OREGON
AGR-SCS-PORTLAND, ORE. NOV. 1953
U.S. DEPARTMENT OF AGRICULTURE